

DuthieExpansion

Prepared by {enter your company name here}

Printed 1/20/2026

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.048	98	Building, HSG C (ExpSC)
0.037	96	Gravel Parking, HSG C (2S)
0.074	96	Gravel parking, HSG C (ExpSC)
0.016	98	Rooftop, Good, HSG C (2S)
0.254	72	Woods/grass comb., Good, HSG C (2S, ExExist, ExpSC)
0.429	82	TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.048	0.000	0.000	0.048	Building	ExPSC
0.000	0.000	0.037	0.000	0.000	0.037	Gravel Parking	2S
0.000	0.000	0.074	0.000	0.000	0.074	Gravel parking	ExPSC
0.000	0.000	0.016	0.000	0.000	0.016	Rooftop, Good	2S
0.000	0.000	0.254	0.000	0.000	0.254	Woods/grass comb., Good	2S, ExExist, ExPSC
0.000	0.000	0.429	0.000	0.000	0.429	TOTAL AREA	

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Type II 24-hr Rainfall=5.82"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment2S: Expansion Proposed Runoff Area=3,208 sf 21.82% Impervious Runoff Depth>4.38"
Tc=6.0 min CN=90 Runoff=0.55 cfs 0.027 af

SubcatchmentExExist: Expansion Existing Runoff Area=9,351 sf 0.00% Impervious Runoff Depth>2.62"
Tc=6.0 min CN=72 Runoff=1.05 cfs 0.047 af

SubcatchmentExPSC: Expansion Proposed Runoff Area=6,143 sf 34.19% Impervious Runoff Depth>4.68"
Tc=6.0 min CN=93 Runoff=1.09 cfs 0.055 af

Reach ExE: Design Point Existing Inflow=1.05 cfs 0.047 af
Outflow=1.05 cfs 0.047 af

Reach ExP: Design Point Proposed Inflow=1.09 cfs 0.065 af
Outflow=1.09 cfs 0.065 af

Pond AB: Attenuation Basin Peak Elev=1.98' Storage=708 cf Inflow=0.55 cfs 0.027 af
Discarded=0.00 cfs 0.001 af Primary=0.12 cfs 0.010 af Outflow=0.12 cfs 0.012 af

Total Runoff Area = 0.429 ac Runoff Volume = 0.129 af Average Runoff Depth = 3.60"
85.03% Pervious = 0.365 ac 14.97% Impervious = 0.064 ac

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Summary for Subcatchment 2S: Expansion Proposed Subcatchment

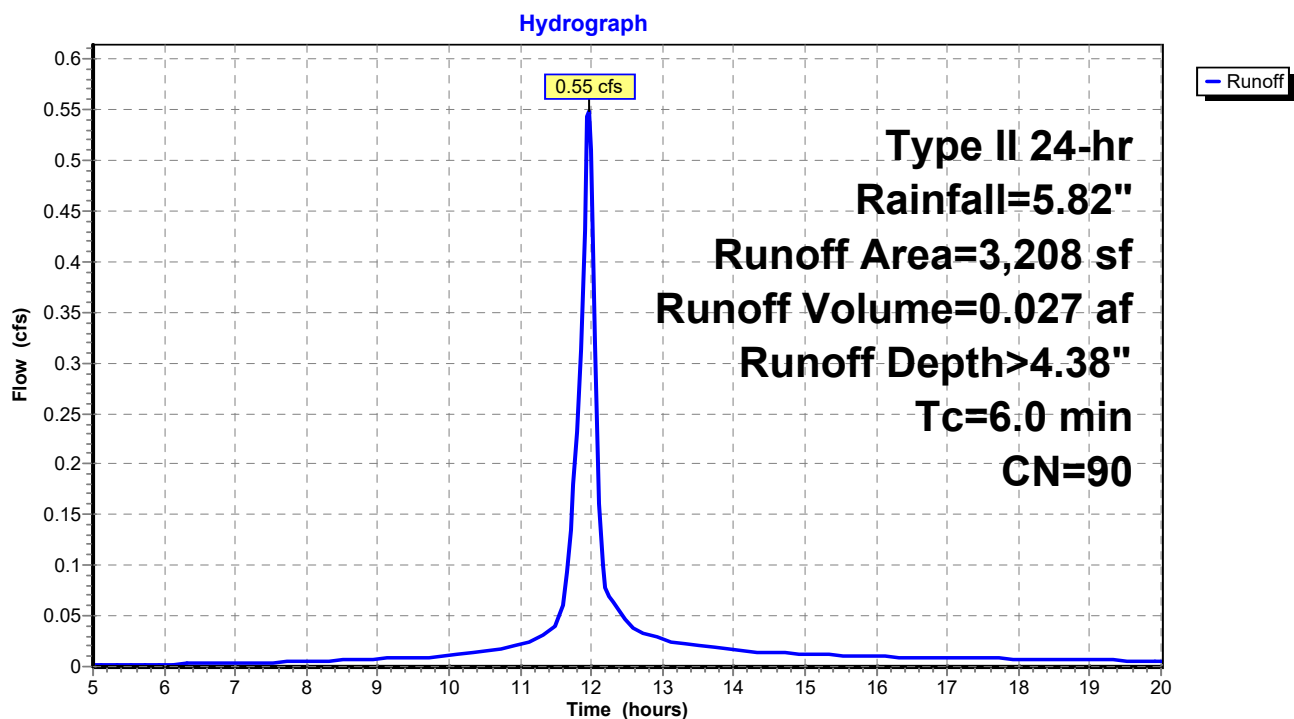
Runoff = 0.55 cfs @ 11.96 hrs, Volume= 0.027 af, Depth> 4.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr Rainfall=5.82"

	Area (sf)	CN	Description
*	1,610	96	Gravel Parking, HSG C
	898	72	Woods/grass comb., Good, HSG C
*	700	98	Rooftop, Good, HSG C
	3,208	90	Weighted Average
	2,508		78.18% Pervious Area
	700		21.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 6 Minute Minimum

Subcatchment 2S: Expansion Proposed Subcatchment



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Summary for Subcatchment ExExist: Expansion Existing Subcatchment

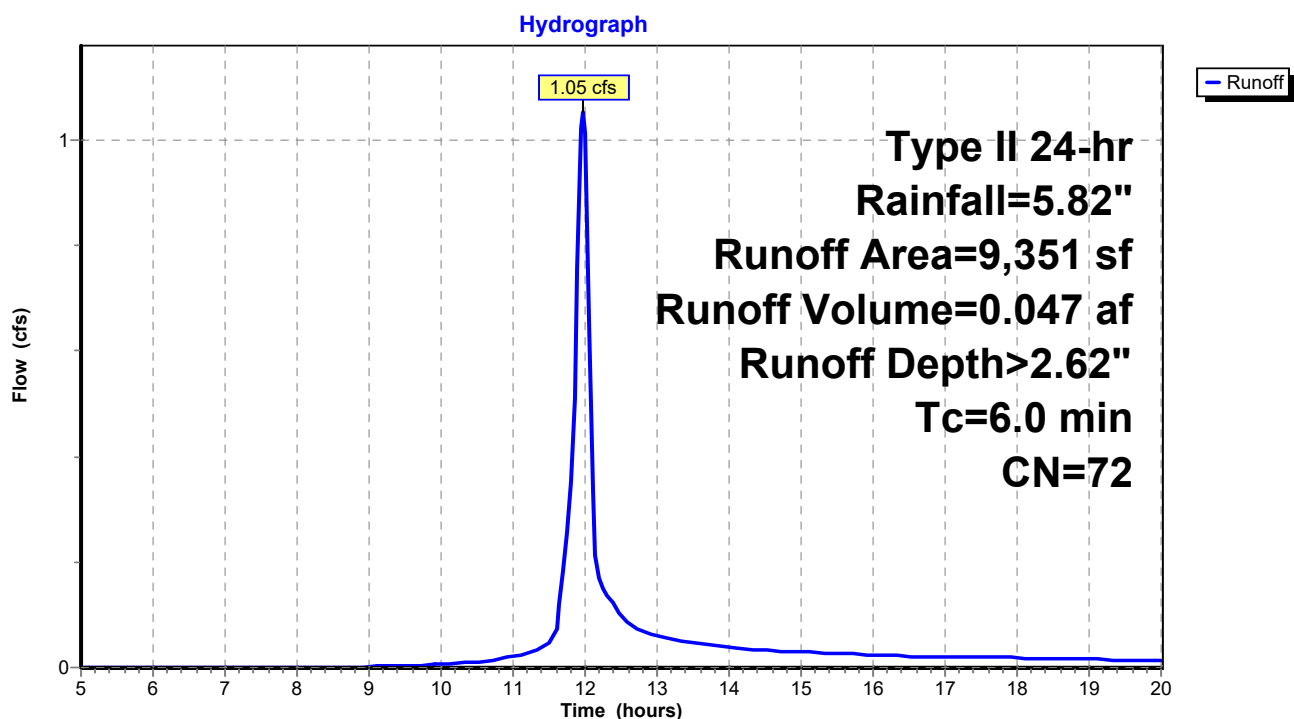
Runoff = 1.05 cfs @ 11.97 hrs, Volume= 0.047 af, Depth> 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr Rainfall=5.82"

Area (sf)	CN	Description
9,351	72	Woods/grass comb., Good, HSG C
9,351		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 6 Minute Minimum

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Summary for Subcatchment ExPSC: Expansion Proposed Subcatchment

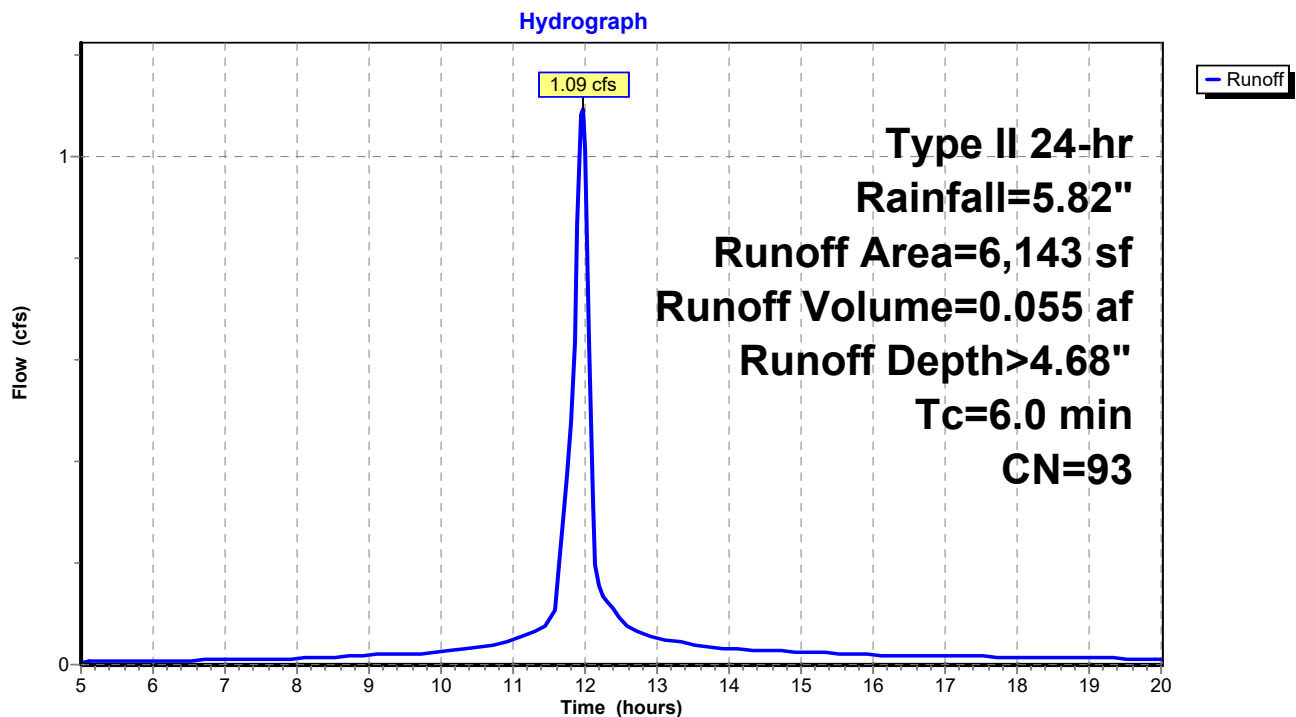
Runoff = 1.09 cfs @ 11.96 hrs, Volume= 0.055 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr Rainfall=5.82"

	Area (sf)	CN	Description
*	3,217	96	Gravel parking, HSG C
*	2,100	98	Building, HSG C
	826	72	Woods/grass comb., Good, HSG C
	6,143	93	Weighted Average
	4,043		65.81% Pervious Area
	2,100		34.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 6 Minute Minimum

Subcatchment ExPSC: Expansion Proposed Subcatchment



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Summary for Reach ExE: Design Point Existing

[40] Hint: Not Described (Outflow=Inflow)

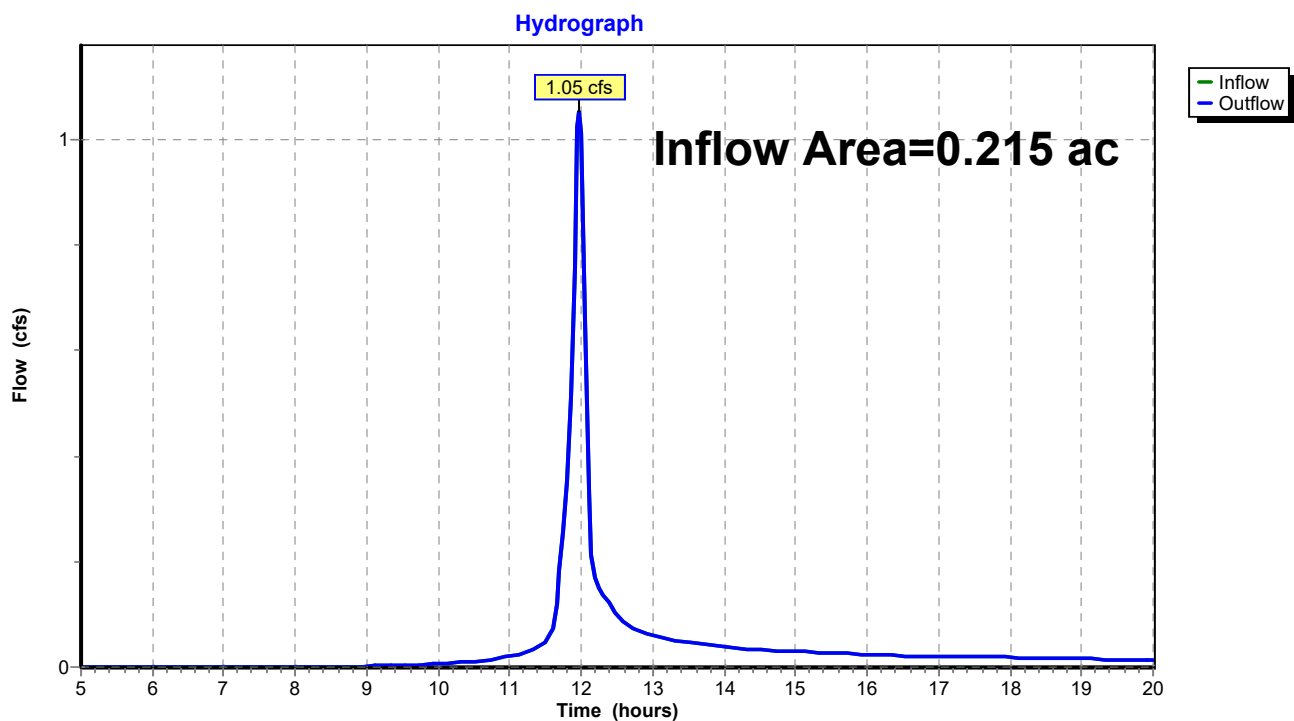
Inflow Area = 0.215 ac, 0.00% Impervious, Inflow Depth > 2.62"

Inflow = 1.05 cfs @ 11.97 hrs, Volume= 0.047 af

Outflow = 1.05 cfs @ 11.97 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach ExE: Design Point Existing



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Summary for Reach ExP: Design Point Proposed

[40] Hint: Not Described (Outflow=Inflow)

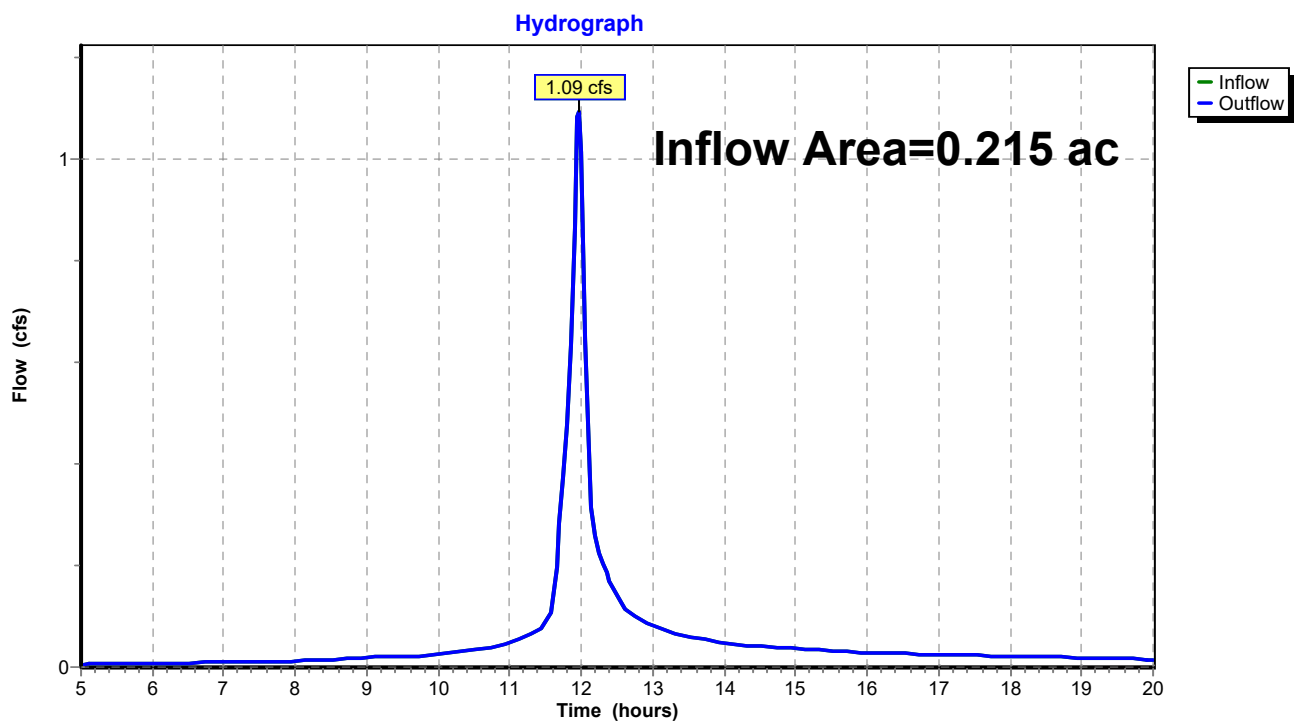
Inflow Area = 0.215 ac, 29.94% Impervious, Inflow Depth > 3.66"

Inflow = 1.09 cfs @ 11.96 hrs, Volume= 0.065 af

Outflow = 1.09 cfs @ 11.96 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach ExP: Design Point Proposed



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Summary for Pond AB: Attenuation Basin

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.074 ac, 21.82% Impervious, Inflow Depth > 4.38"
Inflow = 0.55 cfs @ 11.96 hrs, Volume= 0.027 af
Outflow = 0.12 cfs @ 12.15 hrs, Volume= 0.012 af, Atten= 78%, Lag= 11.1 min
Discarded = 0.00 cfs @ 12.15 hrs, Volume= 0.001 af
Primary = 0.12 cfs @ 12.15 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1.98' @ 12.15 hrs Surf.Area= 595 sf Storage= 708 cf

Plug-Flow detention time= 192.3 min calculated for 0.012 af (43% of inflow)
Center-of-Mass det. time= 102.1 min (852.2 - 750.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	870 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	140	0	0
1.00	350	245	245
2.00	600	475	720
2.50	0	150	870

Device	Routing	Invert	Outlet Devices
#1	Primary	1.90'	2.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Discarded	0.00'	0.100 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 12.15 hrs HW=1.98' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 12.15 hrs HW=1.98' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.12 cfs @ 0.72 fps)

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Pond AB: Attenuation Basin

